[page 20, lines 7-14] Riser 22 discharges the catalyst and hydrocarbon mixture through riser outlets 44 to effect an initial disengagement of catalyst and hydrocarbon vapors. A majority of the hydrocarbon vapors continue to move upwardly into the inlet of cyclone separator 46 which effects a near complete removal of catalyst from hydrocarbon vapors. Separated hydrocarbon vapors exit reactor 12 through an overhead conduit 48 while a discharge leg 50 returns separated catalyst to a lower portion of the reactor vessel. Catalyst from riser outlets 44 and discharge leg 50 collects in a lower portion of the reactor and supplies catalyst to stripping vessel 14.

B1

[page 21, lines 11-22] FIG. 2 shows a stripping baffle 56 having the greatest extent of hole distribution known to have been previously practiced in a sloped baffle-type stripper. This hole pattern was used in a stripper having a diameter of about 4.5 feet (1.4 meters) and a centralized distribution 56' of approximately 160 holes over ten rows arranged in a uniform triangular pitch. The relatively narrow band over which the large number of holes was centralized is only about equal in width to the nominal radius of the stripping vessel. Thus, even when the largest number of holes were provided, large areas of unperforated sections still exist over the sloped surface. For example, the lower portion of the sloped surface is unperforated in approximately a 10 inch (25 cm) length from the first row of holes towards the bottom edge of the baffle. This still leaves an area of over 3 ft^2 (0.279 m^2) at the bottom of the baffle without any perforations and an even greater area without perforations at the top of the baffle.

B2

[paragraph bridging pages 22 and 23] FIG. 3 shows a series of stripper baffles arranged in accordance with this invention for replacement of the baffles shown in FIGS. 1 and 2. As opposed to the baffles 56, shown in FIG. 1, which extend from opposite sides of the stripping vessel 14, the internal baffle arrangement of a stripper 14' uses the more common annular arrangement of sloped baffles. While the annular-type sloped baffles are preferred, side-to-side baffles as shown in FIGS. 1 and 2 may also be employed in this invention. The sloped baffles have a generally annular projection across the transverse cross-section of stripper 14'. Inner baffles 41 extend outwardly from a central support conduit 43 that finds support from the top of stripper vessel 14'. Outer baffles 45 extend

B3

inwardly from the outer wall of stripping vessel 14'. The baffles extend down the vertical length of stripper 14' for a substantial portion of its vertical length. Increased stripper performance is usually obtained with an increased number of baffles. The available length of the stripper for layout configurations or other equipment constraints may limit the number of baffles that may be incorporated into the stripper. The annular baffle configuration is generally preferred since it will maximize the number of baffles which may be located within the stripping vessel. Additional baffles represent additional stages of stripping and most strippers will usually have a minimum of seven baffles overall. Spacing between the baffles must provide sufficient flow area for cascading movement of the catalyst around the inner and outer baffles. Providing a slope to the projecting baffle surface ensures movement of the catalyst across the baffle surface. Generally, the baffles will have an angle of inclination A to the horizontal of between 30° and 45°. Shallower angles of the baffles have the advantage of further maximizing the number of baffles that may be located in a given stripper length and providing less differential in the pressure head between the holes closer to the edge and the holes closer to the wall to which the baffle is attached. Moreover, a 30° angle gives more uniform jet velocity than a 45° angle because holes farther from the edge have a lower elevation and a greater pressure head. A baffle angle of 0° may be better than a baffle angle of 30°. However, as the baffle angle becomes more shallow catalyst has a greater tendency to accumulate on the baffle and the aeration of catalyst on the baffle becomes more critical. Hence, baffles with shallower angles must be provided with greater hole density to maintain fluidization of the catalyst for a given catalyst flux. Setting the angle of inclination of the baffles at 30° provides a good compromise between the competing considerations. However, the advantages of this invention may still be obtained through the use of horizontal baffles which gives the most uniform jet velocity but also requires the greatest hole density.

B3

[paragraph bridging pages 23 and 24] The outer diameter B of the inner baffles 41 and the inner diameter C of the outer baffles 45 are sized to facilitate construction of the stripper internals and to balance catalyst flow areas. Accordingly, dimensions B and C are ordinarily set so that the transverse projection of the inner and outer baffles cover

B4

approximately an equal area. Maintaining outer diameter B slightly smaller than inner diameter C permits insertion of conduit 43 with inner baffles 41 assembled thereon so that there is adequate clearance for the installation of both the inner and outer baffles. The difference in diameters B and C is kept relatively small and it is preferable that each baffle covers at least one-third of the total transverse annular flow area of stripper 14'. Preferably, the combined transverse projection of the inner and outer baffles will have a projection that substantially covers the annular cross-section of the stripper.

B4

[page 25, lines 3-22] An important feature of this invention is the distribution of the baffle openings over the entire sloped area of the baffles. The spacing of the perforations over the sloped area may be arranged in any manner that eliminates wide bands or areas that do not contain holes for delivery of the fluidization medium. The hole distribution most beneficial to this invention can be described by a limitation on the maximum circular area that must contain at least one opening. Generally, any circular area of at least 1 ft^2 (0.09 m^2) must surround at least a portion of one or more openings in that area. The circular area that can be circumscribed without enclosing a hole will usually not exceed 0.5 ft^2 (0.05 m^2). Following this type of criteria for the minimum geometry of an area that must contain a perforation will eliminate any large unperforated areas from the baffles. The spacing shown in FIG. 4 uses two rings of holes with the rings spaced approximately equally over the annular width of the sloped outer baffle 45. Inner ring 53 has approximately 72 holes equally spaced holes. Outer ring 55 has approximately 36 equally spaced holes. Each ring of holes 53 and 55 is approximately 3 inches (7.6 cm) from the nearest edge of the baffle and the adjacent row of holes. In an annular baffle arrangement, the largest spacing between the openings on the baffles is likely to occur in the outermost row of holes due to the increasing diameter of the baffle and especially in view of the increased pressure drop at the outer ring of openings which would require reduction in the total open area provided by the openings to obtain a uniform volumetric distribution of gas over the entire sloped surface.

B5

[page 26, lines 1-13] With respect to the inner baffles 41, the decreasing diameter of the baffle surface with increasing elevation promotes a more uniform distribution of the

B6

openings over the entire baffle surface. FIG. 5 shows such an arrangement where four rings of openings 57, 59, 62, and 63 contain 44, 44, 22, and 11 holes, respectively. Accordingly, the spacing between the openings in the first two rows are approximately the same and the spacing between the different rings of openings varies from about 3 inches (7.6 cm) at the bottom to approximately 8.25 inches (21 cm) at the top. The objective in spacing the openings is not so much to establish uniform distances but to have openings on lower rows that lie intermediate the openings in upper rows and thereby eliminate extended flow paths across the baffle that could permit catalyst to bypass the stripping medium. When the number of holes in a particular ring of openings becomes excessive, different diameters may be used relative to the upper holes to provide additional open area without increasing the number of holes.

B6

[paragraph bridging pages 27 and 28] The reactor arrangement 10 in FIG. 6 operates in essentially the same manner as the reactor and riser shown in FIG. 1. A regenerator standpipe 116 transfers catalyst from a regenerator (not shown) at a rate regulated by a slide valve 111. A fluidization medium from nozzle 117 transports catalyst upwardly through a lower riser portion 114 at a relatively high density until a plurality of feed injection nozzles 115 (only one is shown) inject feed across the flowing stream of catalyst particles. The resulting mixture continues upward through an upper riser 112 until a pair of disengaging arms 121 tangentially discharge the mixture of gas and catalyst from a top 119 of the riser into a disengaging chamber 123 that effects separation of gases from the catalyst. A transport conduit 122 carries the hydrocarbon vapors and entrained catalyst to one or more cyclones 124 that separates spent catalyst from the hydrocarbon vapor stream. A collection chamber 125 gathers the separated hydrocarbon vapor streams from the cyclones for passage to an outlet nozzle 128 and into a fractionation zone (not shown). Diplegs 130 discharge catalyst from cyclones 124 into a lower portion of a collection space 131 that eventually passes the catalyst and adsorbed or entrained hydrocarbons into stripper zone 132 across ports (not shown) defined by the bottom of disengaging chamber 123. Catalyst separated in disengaging chamber 123 passes directly into stripper zone 132. The stripping gas enters a lower portion of the stripping zone 132

B7